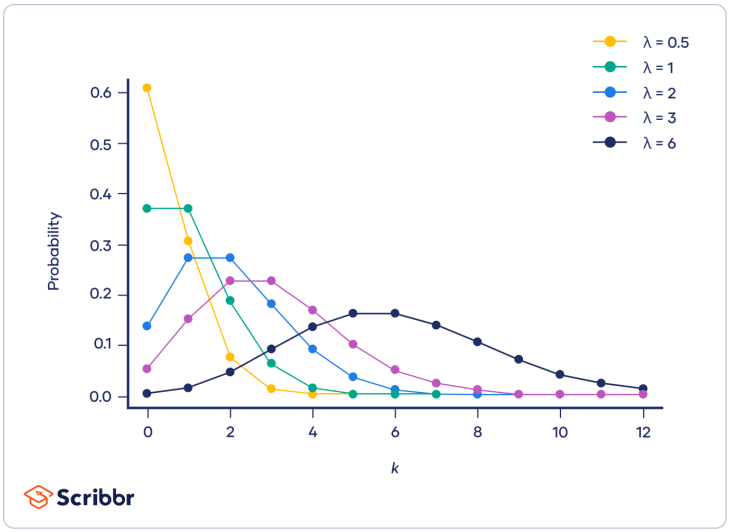
Poisson Distribution

A Poisson distribution is a discrete probability distribution. It gives the probability of an event happening a certain number of times (k) within a given interval of time or space.

The Poisson distribution has only one parameter, λ (lambda), which is the mean number of events. The graph below shows examples of Poisson distributions with different values of λ.



$$P(X = k) = \frac{e^{-\lambda}\,\lambda^{k}}{k!}$$

$$P(X = 5) = \frac{e^{-3}\,3^{5}}{5!} = 0.101 = 10.1\%$$

Mean of Poisson Distribution

$E(X) = \lambda * t$ Here, λ is the expected no. of events occur at every time interval and t is the time interval

Variance of Poisson Distribution

$Variance = \lambda * t$